The justifiability of financial reporting preferences in accounting for intangibles in business combinations

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Abstract

Intangible assets are often recognized as part of a business combination in which acquirers estimate fair value based on uncertain inputs. In this paper, we test the idea that uncertainty in acquirers’ private information about the fair value of intangible assets causes them to make decisions based on their own financial reporting preferences. Results from two experiments with experienced accounting professionals as participants show that high uncertainty in acquirers’ private information causes them to consider financial reporting outcomes in their acquisition-date fair value decisions. In contrast, participants do not consider financial reporting outcomes when they have low uncertainty in their private information, despite the fact that doing so would allow them to maximize their own personal utility without negative consequences. Further, we find that acquirers have preferences over both income statement outcomes (amortization expense and potential future impairment losses) and balance sheet outcomes (the amount of recognized goodwill) when valuing intangibles.

Keywords: intangible assets; business combinations; goodwill; elastic justification
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I. INTRODUCTION

Accounting for business combinations requires an acquiring company to both identify and recognize at fair value the acquired identifiable assets and liabilities, with any residual of the purchase price assigned to goodwill. The identification and valuation of intangible assets is particularly challenging. Many intangibles are not recognized on the acquired company’s balance sheet (e.g., internally developed intangibles), so their identification can be challenging. Further, intangibles are difficult to value as their fair values typically are based on the acquirer’s private information about unobservable factors (FASB ASC 820). In this paper, we examine how uncertainty in acquirers’ private information about the fair value of acquired intangible assets causes acquirers’ preferences for certain financial reporting outcomes to determine their acquisition-date valuation of intangibles.

Investigating this issue is important for at least two reasons. First, intangibles now comprise over 70 percent of the assets acquired in business combinations (Griffin et al., 2017), with most acquisitions involving multiple types of intangibles. Although standard setters provide some guidance regarding identification and valuation of intangible assets (ASC 805; ASC 820), acquirers nevertheless have considerable discretion in this setting.¹ Thus, improving our understanding of how acquirers make valuation decisions for these economically meaningful assets is important, especially because auditors are unlikely to object to acquirers’ decisions (Nelson et al., 2002; Griffith et al., 2015).

Second, prior evidence is unclear on firm managers’ reporting preferences for recognizing intangibles acquired as part of a business acquisition. On the one hand, some evidence suggests

¹ Most business combinations occur via one of two common transaction structures—either net asset acquisitions or stock acquisitions (Christensen et al., 2019). In both transactions, the acquired company’s assets and liabilities are recorded at fair value for purposes of presenting consolidated financial statements.
that firm managers prefer to overstate valuations for intangibles that are tested for impairment (e.g., goodwill) to increase reported earnings, at least in the near term (Shalev et al. 2013; Wolfe Research, 2019). Other research, though, suggests that firm managers may want to avoid valuations that could lead to future impairments, as impairment charges (especially for goodwill) are viewed negatively because of their linkage to declining future profitability (Li et al., 2011). Finally, other research suggests the balance sheet could also impact these considerations, as abnormal amounts of goodwill on the balance sheet can indicate overpayment for an acquisition and be viewed negatively by the markets (Paugam et al., 2015). Given this lack of clarity about managers’ financial reporting preferences in business combinations, additional research is warranted.

We draw on the psychology theory of elastic justification to understand how fair value estimate uncertainty causes financial reporting preferences to determine acquirers’ valuations of intangibles in a business combination. This theory predicts that when there is greater elasticity (i.e., high uncertainty) about decision-relevant factors, individuals will turn to factors that are irrelevant, but that they would like to consider, when making their decisions (Hsee, 1995; 1996). In contrast, when there is less elasticity (i.e., low uncertainty) about decision-relevant factors, individuals are less likely to consider tempting, but decision-irrelevant, factors. Normatively, relevant and irrelevant factors are independent of each other and so a feature of one should not affect whether the other is used to make a decision.

In the context of this theory, relevant factors have a meaning that is distinct from the way in which relevance is defined in the Financial Accounting Standards Board’s (FASB) Conceptual Framework, which states that relevant information is “capable of making a difference in the
decisions made by users” (FASB, 2018; QC6).\(^2\) Specifically, elastic justification theory specifies that decision-relevant factors are those factors that would be normatively appropriate to consider from an unbiased decision-making perspective; in this context, from the perspective of regulators, standard setters, and auditors.

Taking these ideas to the business combination setting, an acquirer’s private and unbiased information about fair values is clearly a relevant factor when assigning values to intangibles. In contrast, the financial reporting consequence associated with a particular valuation is a tempting, but arguably irrelevant, factor to the task of providing unbiased intangible asset valuations. That is, when viewed from the perspective of regulators, standard setters and auditors, acquirers normatively should not consider the financial reporting consequences associated with their acquisition-date valuations of intangible assets when making those valuation decisions. With this idea in mind, we predict that high uncertainty about a relevant factor (i.e., acquirer’s \textit{private} information about the fair value of an intangible asset) will cause acquirers to incorporate an irrelevant factor (i.e., preferences for particular financial reporting outcomes) into their valuations.

To test this hypothesis, we conduct two experiments with accounting professionals who have an average of 22 years of work experience. The two experiments differ in the types of intangible assets included in the valuation task, with experiment one (two) not involving (involving) goodwill as one of the intangibles. In both experiments, we ask participants, in the role of CFO, to decide on the fair values of two intangibles acquired in a business combination: namely, developed software and a trademark (in experiment one) or developed software and goodwill (in

\(^2\) Thus, we also use the term relevance in a different way to the value relevance literature in accounting, which assesses the relevance of information based on its correlation with market values as a way to operationalize whether the information affects users’ decisions (see e.g., Holthausen and Watts, 2001).
experiment two). Both experiments involve $2 \times 2$ between-participants designs. Our first manipulation is the uncertainty in acquirers’ private information about the intangibles’ fair value, which we operationalize via a narrow or wide range of estimated fair values. Importantly, we manipulate only the uncertainty of acquirers’ private information; we hold constant the range of values that would be accepted by the firm’s auditor (at the wide range). Thus, all participants have the same amount of discretion available to satisfy their preferences. Our second manipulation is the subsequent accounting for one of the intangibles (the trademark in experiment one and goodwill in experiment two), which we manipulate as either annual amortization or periodic impairment testing. In both experiments, the developed software is always amortized to expense. By creating conditions in which the subsequent accounting is either the same or different for the two assets, this manipulation allows us to observe how acquirers’ preferences for income statement and/or balance sheet consequences affect the relative values they assign to the acquired intangibles.

Results from experiment one reveal no significant effects of fair value uncertainty or subsequent accounting on participants’ mean valuations for the intangibles. Although at first blush these results do not appear to support our theory, closer inspection suggests otherwise. Specifically, we observe that in the condition where there is high uncertainty in participants’ private information about the intangible’s (i.e., trademark’s) value and its accounting only requires periodic impairment testing, participants’ written justifications more frequently cite an irrelevant factor (i.e., the financial reporting consequences of the accounting) than in the other three conditions, consistent with elastic justification. Key to understanding our experiment one results, though, is that those financial reporting preferences were not uniform. Some participants in this condition preferred to minimize future amortization expense, and thus assigned a greater
value to the trademark, while others preferred to mitigate the risk of future impairment losses, and thus assigned a lower value to the trademark. Overall, participants did consider the irrelevant factor of future financial reporting (i.e., income statement) outcomes, but variation in these preferences created the highest dispersion in assigned valuations in this one condition along with valuations that offset one another on average.

Results from experiment two—where goodwill was one of the two acquired intangibles—are more obviously consistent with elastic justification. We find that, as predicted, high uncertainty in acquirers’ private information about the intangible asset values causes the subsequent accounting of goodwill to affect acquirers’ valuations of developed software and goodwill. Under high uncertainty, goodwill valuations are significantly greater when goodwill is only subject to future impairment tests rather than systematic amortization. When uncertainty is low, the subsequent accounting for goodwill has no impact on acquirers’ valuations. The latter result is particularly intriguing as participants were told that their outside auditor was comfortable with a wider range of values for the intangibles; participants did not use that available discretion, but appeared constrained by their own private information about those fair values, consistent with elastic justification. Experiment two results also show that acquirers’ financial reporting preferences not only include the income statement but also the balance sheet. Specifically, when both goodwill and developed software are amortized such that the income statement consequence of their decision is held constant, participants in the high-uncertainty condition assign a higher value to developed software and thus a lower value to goodwill. This result is consistent with a preference to recognize lower amounts of goodwill on the balance sheet, ceteris paribus.

Our study has implications for researchers, standard setters, regulators, and auditors. For researchers, we add to the existing literature by suggesting that archival findings regarding
preferences to assign higher values to intangible assets that are not subject to amortization may be specific to goodwill (Shalev et al., 2013). Our results show much more predictable behavior in the case of goodwill than for other indefinite-lived assets (e.g., trademark), where there is significantly more diversity in acquirers’ preferences. We also document that acquirers will not arbitrarily use any available discretion to achieve their financial reporting goals, but rather will use discretion only when they are able to justify it to themselves—that is, when there is high uncertainty in the factors that are relevant to the decision at hand. These theory-based insights about how and when firm managers use discretion to achieve particular financial reporting outcomes are new to the accounting literature, which is largely silent on factors that constrain managers’ use of discretion.

Standard setters, regulators, and auditors should find our study informative as it suggests there are unintended consequences associated with the accounting for intangible assets. Indeed, we show the subsequent accounting for goodwill has predictable consequences for acquisition-date valuations of goodwill and other intangible assets. This finding is important to standard setters as they recently allowed private companies to amortize goodwill rather than test it periodically for impairment (FASB, 2014a; 2014b), and they are currently considering whether to make similar changes to public company accounting (FASB, 2019b). This finding is important for regulators and auditors as it provides them a better understanding as to when and how acquirers may violate generally accepted accounting principles to achieve their own financial reporting preferences. We also show those preferences are not limited to the consequences for reported earnings, as acquirers also have preferences about the composition of the balance sheet.

The next section of the paper discusses background and develops our hypothesis. Sections three and four discuss experiments one and two. The fifth section concludes.
II. BACKGROUND AND HYPOTHESIS DEVELOPMENT

Accounting for Intangible Assets

Under US Generally Accepted Accounting Principles (GAAP), an intangible asset is generally recognized on the balance sheet when it is acquired in an external purchase or business combination. Accounting standards require intangible assets to be measured at their fair value on initial recognition (ASC 350; ASC 805). When a single intangible asset is purchased, acquirers can use the transaction price as the fair value of the asset. In a business combination, however, the acquiring firm’s management must identify and determine the fair value of all acquired assets and liabilities (Kimbrough, 2007), which are then recognized on the acquiring firm’s balance sheet.  

Any difference between the fair value of the net identifiable assets and the purchase price is recognized as goodwill.

Determining the fair value of an intangible asset is usually more complex and subjective than assessing the fair value of a tangible asset, and especially so in a business combination. First, many intangible assets are not recognized on the acquired firm’s balance sheet, as US GAAP generally does not allow firms to capitalize their own internally-developed intangible assets. Second, intangibles tend to be unique and so there is generally no active market for identical or similar assets. Therefore, acquirers estimate the fair value based on private information about the expected benefits of the asset that come from its highest and best use (ASC 820). Third, these benefits are often highly uncertain and estimating their level and riskiness requires acquirers to make subjective decisions on the basis of unobservable (Level 3) inputs.

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3 This valuation process also applies when a firm purchases multiple intangible assets in a basket purchase and must allocate the total transaction price to the acquired assets based on their relative fair values.

4 Given the unique nature of intangible assets, even the presence of third-party valuation experts (hired by the acquiring firm) would be unlikely to change the uncertainty involved in their estimation.
Following initial recognition, current accounting standards specify different accounting treatments for certain classes of intangible assets (ASC 350). Goodwill and other indefinite-lived intangible assets are tested for impairment at least annually. An impairment loss is recorded only when there is evidence that the carrying amount exceeds the asset’s fair value, in which case the asset is written down to its fair value. Definite-lived intangible assets are subject to systematic amortization, reducing future net income by a predictable amount of amortization expense over the asset’s useful life.

Archival Evidence

Acquirers’ private information in accounting for business combinations is unobservable; researchers can only observe the final asset values. To detect potential bias in acquisition-date fair values, archival studies therefore correlate recognized asset values with acquirers’ incentives for financial reporting or tax outcomes (e.g., Dowdell et al., 2009; Shalev et al., 2013; Zhang and Zhang 2017; Lynch et al., 2018). For instance, prior studies find executives’ compensation incentives are correlated with relative asset values in business combinations; CEOs who are closer to retirement and who have a higher proportion of their compensation tied to bonuses assign a greater proportion of an acquisition’s purchase price to indefinite-lived intangible assets when these assets are subject to periodic impairment testing (Shalev et al., 2013; Zhang and Zhang, 2017). The assumption in these studies is that differences in the accounting for intangible assets affect acquisition-date fair values because executives with greater bonus intensity are more likely to prefer avoiding amortization charges, and executives closer to retirement are less likely to be concerned about future impairment losses.

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5 See ASC 350 for specifics on the steps required for goodwill impairment testing. Prior to the adoption of SFAS 142 (now ASC 350), firms were required to amortize goodwill over an estimated useful life no greater than 40 years. Definite-lived intangible assets must also be written down if evidence exists that the asset’s value is not recoverable.
Our experimental approach complements this archival evidence in several ways. First, we hold constant both the economic characteristics of the acquisition and acquirers’ incentives in order to isolate the causal effect of accounting for intangibles on acquirers’ valuation decisions. Second, we exogenously vary the uncertainty in acquirers’ private information to examine conditions under which acquirers consider irrelevant factors—in our case, financial reporting preferences—to be justifiable in their asset valuations. Third, we are able to observe how acquirers make decisions rather than observing the outcomes of their decisions and making inferences about the process by which they arrived at that outcome (Libby et al., 2002).

**Theory and Hypothesis Development**

When making judgments and decisions, individuals often are faced with factors that are directly relevant to the decision (“relevant factors”) and factors that should not influence the decision but may nevertheless be tempting to consider (“irrelevant factors”). Hsee (1995) provides the example of a car salesman asked to take a trip to sell as many cars as possible. He can go to City A, which has 60 potential buyers, or City B, which has 40 potential buyers. Although City A has more potential buyers than City B, the salesman prefers visiting City B compared to City A, because City B has more leisure activities. In this example, the number of potential buyers is a relevant factor to the salesman’s decision about which city will enable him to sell the most cars. The salesman’s preference for City B because of its leisure activities is an irrelevant factor that the salesman would nevertheless like to consider in deciding where to travel.

Elastic justification theory indicates that irrelevant factors are more likely to affect individuals’ decisions when there is significant elasticity, or uncertainty, about the relevant factors (Hsee, 1995; 1996). It is the elasticity in the relevant factors that allows individuals to
justify to themselves the use of irrelevant factors in their decisions. Returning to the salesman example, if City A had between 30 and 90 potential buyers and City B had between 10 and 70 potential buyers (i.e., considerable uncertainty in the number of potential buyers), the salesman would be more likely to consider his preference for City B in making his decision than if the number of potential buyers were known with certainty. The higher elasticity in the number of potential buyers (relevant factor) allows the salesman to justify to himself the reliance on his preference for City B’s leisure activities (irrelevant factor). As explained below, key features of elastic justification theory—relevant and irrelevant factors, as well as uncertainty—map into the setting of valuing intangible assets in business combinations, thereby making this theory appropriate for developing predictions in this setting.

An important distinction must be made between the term “relevant” in the context of elastic justification theory and the way in which relevance is defined in the FASB’s Conceptual Framework. Information is relevant in elastic justification theory if it is normatively appropriate for a decision-maker to consider when required to make an unbiased decision. In contrast, the Conceptual Framework defines information as relevant if it is “capable of making a difference in the decisions made by users” (FASB, 2018; QC6), which does not specify what information users should consider when making decisions.

Regarding relevant factors, the FASB outlines in their standards those factors that acquiring firms should consider when identifying and valuing intangible assets purchased in a business combination (ASC 805; ASC 820). Specifically, they enumerate intangible assets that, if they exist in a business combination transaction, should be separately identified and recognized in a business combination. In addition, they provide guidance on how to value these assets. In the
absence of observable market prices, acquirers are to rely on estimates of the future benefits derived from the highest and best use of the acquired asset (ASC 820).

Regarding irrelevant factors, we posit that financial reporting consequences are tempting but irrelevant factors for acquirers in determining the fair values of intangible assets. These factors are irrelevant, as regulators, standard setters, and auditors would not endorse the idea that acquirers should consider the financial reporting consequences associated with their acquisition-date valuations of intangible assets. Rather, those valuations would depend on the FASB’s guidelines, as indicated above.

We focus on financial reporting consequences as they pertain to the income statement and balance sheet. Regarding the income statement, an intangible asset’s value at initial recognition can influence future reported income. Assigning a higher value to indefinite-lived intangible assets that are subject to regular impairment testing reduces future amortization expense, which is desirable if acquirers prefer to report higher earnings, at least in the short term. However, assigning a higher value to indefinite-lived intangible assets also increases the risk of future impairment losses. Acquirers might prefer to avoid impairment losses as they are considered a negative signal of a firm’s outlook (e.g., Li et al., 2011). Thus, when some intangibles are amortized and others are subject to impairment testing, acquirers may want to alter their acquisition-date valuation of intangibles to reflect their preferences for future income statement outcomes. Regarding the balance sheet, not all intangible assets are viewed equally. Specifically, abnormal amounts of goodwill on the balance sheet are potentially suggestive of overpayment for an acquisition and are viewed negatively by the markets (Paugam et al., 2015). Thus, acquirers may prefer to minimize the amount of goodwill recognized on the balance sheet, which could alter their acquisition-date valuation decisions.
Regarding uncertainty, there is considerable variation in the uncertainty of inputs to fair value estimates for intangibles. Compared to the situation in which an intangible asset is purchased by a company in a standalone transaction (when the transaction value can be taken as the asset’s fair value), the value of an intangible asset acquired in a business combination tends to be much more uncertain. Liquid markets for such intangible assets are unlikely to exist, which means that acquirers must estimate fair value based on unobservable inputs, which likely includes private information. According to the elastic justification theory, this high level of uncertainty about a relevant factor (i.e., information about an asset’s fair value) makes it likely that acquirers will consider the use of irrelevant factors (i.e., their preferences for financial reporting outcomes) to be more justifiable in making their fair value decisions.

Based on the theory outlined above, we expect that acquirers will feel more justified in considering financial reporting consequences in their acquisition-date fair value decisions when their private information about the relevant inputs to the valuation of intangible assets is more elastic, or uncertain. We state our hypothesis as follows:

**Hypothesis:** Acquirers’ preferences for financial reporting outcomes will have a greater effect on acquirers’ acquisition-date fair value decisions when acquirers’ private information is more elastic.

We do not make a more specific prediction about the pattern of means comprising the interaction predicted in this hypothesis because acquirers may consider more than one preference. For example, when goodwill is tested for impairment, acquirers may consider (and tradeoff) the benefits of less goodwill on the balance sheet with the benefits of lower amortization expense on the income statement.⁶

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⁶ For several reasons, we do not rely on a Bayesian updating framework for our predictions. First, although our setting does involve uncertainty about the valuation of intangible assets, our main dependent measure is the valuation assigned to intangible assets in a business combination—which is a decision. Strictly speaking, Bayes’ theorem pertains to judgments (not decisions) made under uncertainty about possible future events. Second, our
III. EXPERIMENT ONE

Design Overview and Participants

Experiment one has a $2 \times 2$ between-participants design in which participants assume the role of a Chief Financial Officer and complete the accounting for a business combination. Participants are told their team has already valued the tangible assets and liabilities involved in the business acquisition and that there is $50$ million remaining of the purchase price to be allocated to two identifiable intangible assets—developed software and a trademark. Our first manipulation is whether accounting standards require the firm to amortize the trademark over the subsequent $10$ years or test it for impairment in subsequent accounting periods. Our second manipulation is the uncertainty (high or low) of participants’ private information about the value of the developed software. There is no residual allocation to goodwill in the main task in experiment one. This design choice allows us to focus on acquirers’ income statement preferences (i.e., reducing future amortization expense or avoiding future impairment losses) and minimize the potential that participants consider the implications of the balance sheet when rendering their valuation decisions (cf. Paugam et al., 2015).

Given the complex nature of accounting for business combinations, we recruited appropriate participants by identifying experienced professionals from the alumni database of a highly-rated business school at a large public university in the United States. Specifically, we identified all individuals who graduated with a degree in accounting at least ten years prior to the experiment. From this population, we randomly selected 300 individuals and mailed them a participation letter with a link to complete the experiment via an online survey link. Over the next several weeks, we sent two follow-up emails with the same information. We received 113 responses

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theoretical framework—elastic justification—is arguably more specific than Bayes’ theorem about which features of the business combination context acquirers will consider when rendering their valuation decisions.
(38% response rate). Participants report an average of 22 years of work experience, and 74% have experience as acquirers and/or auditors of financial statements. Forty-four percent of participants have experience with assigning fair values to assets and liabilities in an acquisition. Participants also report being moderately familiar with accounting for intangible assets (mean of 58 out of 100 with higher scores reflecting more familiarity). We randomly assign all participants to one of the four experimental conditions.

**Manipulations and Dependent Variables**

We manipulate the accounting for the trademark by indicating that it is either amortized to expense over the subsequent 10 years (amortization condition) or tested for impairment in subsequent periods (impairment condition).\(^7\) We also manipulate the uncertainty of participants’ private information about the value of the acquired intangible assets. Specifically, in the low (high) uncertainty condition, we tell participants their own professional estimate of the value of the developed software is between $19-21 million ($15-25 million) and for the trademark, it is between $29-$31 million ($25-$35 million). We select these ranges so that the midpoints are the same across conditions ($20 million for the software and $30 million for the trademark) and sum to $50 million, which is the total amount to be assigned.\(^8\)

Several notable design elements are held constant across all conditions. First, the other intangible asset—developed software—is always amortized to expense over the subsequent 10 years. This design creates conditions in which participants’ valuation decisions either have future income statement consequences (when one asset is amortized and one is tested for impairment)

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\(^7\) Both accounting techniques are possible under current accounting rules. Because a trademark can be renewed every 10 years (on an indefinite basis) with the U.S. Patent and Trademark Office, trademarks are typically viewed as indefinite-lived assets and, thus, tested for impairment. However, if a company determines it will no longer use a trademark, it must amortize the cost of the trademark for the remainder of its useful, definite life.

\(^8\) We also avoid the situation where both intangibles had midpoints of $25 million for two reasons: (1) to minimize any potential confusion on the part of participants, and (2) to capture the reality of most business combinations in which intangible assets have different values.
or do not have future income statement consequences (when both assets are amortized over 10 years). This feature allows us to observe whether and how participants’ preferences for income statement outcomes affect their acquisition-date valuation decisions. Second, participants are told to assume that their annual bonus is based on net income, creating a setting in which income statement outcomes are likely to matter for their own utility (e.g., Shalev et al., 2013). Third, the materials indicate the firm’s outside auditor would not question any valuation of the developed software (trademark) between $15-25 ($25-$35) million, ensuring all participants face the same level of external scrutiny and that only uncertainty of acquirers’ private information varies across conditions.

Participants then provide their decisions about the fair values of the developed software and trademark. After assigning fair values to the developed software and the trademark, we ask participants a series of follow-up questions, including an open-ended question in which we ask them to provide additional information about factors that influenced their valuation decisions. Although the experiment itself did not involve goodwill, we did ask participants in post-experimental questions about how their valuation decisions would change if they had the option to allocate a residual portion of the purchase price to goodwill.

**Manipulation Checks**

To confirm that our manipulations are successful, we first ask participants whether their own professional estimate of the value of the developed software was between $19-21 or $15-25 million. Ninety-four percent of participants (106 of 113) respond correctly to this question, suggesting a successful manipulation. We also ask participants to indicate whether the trademark

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9 Although some firms compensate executives on the basis of EBITDA or earnings adjusted for charges related to intangible assets, many firms do not make these adjustments and thus compensate executives based on net income (Curtis et al., 2018).
would reduce net income each year through amortization expense or whether any reductions in net income would arise from impairment testing only if events or circumstances indicate a decline in the value of the trademark. Ninety percent of participants (102 of 113) respond correctly to this question, again suggesting a successful manipulation. We include all participants’ responses in our subsequent analyses, but excluding participants who failed manipulation checks does not affect our inferences.

**Intangible Asset Valuations**

We report results for participants’ average trademark valuations in Table 1 and graphically present the mean responses in Panel A of Figure 1. The analysis of variance (ANOVA) reveals no significant differences in the mean valuations for the trademark across any of the four conditions (all $p$-values $> 0.18$). The lack of a significant difference in the valuations between the two high-uncertainty conditions (i.e., amortization versus impairment) is unexpected. We anticipated that participants would have a clear preference for a particular income statement outcome (either avoiding amortization expense or reducing the potential for future impairment losses), and those in the high uncertainty condition would then incorporate that preference into their valuation decisions for the two intangible assets, leading to a difference in the mean valuations.

[Table 1 and Figure 1 here]

**Written Justifications: Factors Considered in Valuation Decisions**

Although the results in Table 1 and Figure 1 do not support our hypothesis, before concluding that there is no support for elastic justification in the business combination setting, we conduct a closer examination of participants’ written justifications. These results do support
the theory and provide insights as to why our primary dependent variables—the valuations assigned to the two intangibles—did not show the predicted effects on average.

Recall that participants provided written responses that explained their valuation choices. To analyze these responses, three coders—blind to the experimental conditions—indепendently coded all participants’ responses. Each response was classified into one of four categories, based on the major factors discussed in the response: (1) factors related to the ranges of values provided in the materials, (2) earnings-related factors, (3) impairment-related factors, or (4) other factors. The three coders agreed on 87% of initial classifications and resolved the remaining conflicts through discussion.

The written justification results show that a majority (58%) of participants reference a relevant factor when explaining how they made their valuations. That is, they note the ranges of values (i.e., their private information) as provided in the materials as the basis for their valuation choices. What is particularly interesting, though, is which participants cite an irrelevant factor in their written justifications. Specifically, 45% of participants in the high uncertainty / impairment condition reference factors related to the financial reporting consequences of their decision (i.e., category (2) or (3) from above, which relate to earnings or impairment-related factors, respectively)—that is, they cite an irrelevant factor. This percentage in the high uncertainty / impairment condition is significantly greater than the average of the other three conditions, which range from 0% to 12% of participants referencing the financial reporting consequences ($\chi^2(1) = 7.09 \ p = 0.008$).

This pattern of behavior is consistent with elastic justification theory. Participants in the high uncertainty / impairment condition use the elasticity in their private information (i.e., a relevant factor) as justification for considering an irrelevant factor (i.e., preferences over financial
reporting consequences). Central to understanding our null results for the mean valuations, though, is the fact that these financial reporting preferences were not uniform. Some acquirers in the high uncertainty / impairment accounting condition indicate they prefer to avoid the risk of future impairments and so allocate more to the developed software (which was amortized). In contrast, others indicate they prefer to reduce amortization expense and so allocate more to the trademark (which was tested for impairment). This lack of uniformity in participants’ preferences in the high uncertainty / impairment accounting condition then manifests in opposing directional effects, which causes the mean response in this condition to be similar to the means in the other three conditions, leading to the null results presented earlier.

**Dispersion in Intangible Asset Valuations**

As additional support for our interpretation of the results, we also compute a measure of the dispersion in participants’ trademark valuations. If there are offsetting preferences, as noted above, we should see the greatest dispersion in responses in the high uncertainty / impairment accounting condition. To measure dispersion, we compute the absolute difference of each response from its respective condition mean (for a similar approach, see Hales (2007)).

We report the average dispersion in participants’ trademark valuations across conditions in Table 2, along with the appropriate statistical tests, and graphically present these results in Panel B of Figure 1. As one might expect, we see more dispersion when there is high uncertainty in the fair value estimates (mean dispersion of 1.84) versus low uncertainty (mean of 0.45), suggesting participants use the leeway that the high uncertainty condition offered them when making their valuation decisions ($F_{1,109} = 20.52, p < 0.001$). We also see that dispersion is higher when the trademark is subject to future impairment testing (mean of 1.56) than when it is subject to
amortization (mean of 0.76), consistent with the non-uniform preferences we observe in written responses ($F_{1,109} = 5.98, p = 0.016$).

*Table 2 here*

Although the traditional factorial interaction test is not significant for the dispersion measure ($F_{1,109} = 2.52, p = 0.116$), the pattern of simple main effects is consistent with elastic justification theory. Specifically, we observe an effect of subsequent accounting in the high uncertainty condition ($F_{1,109} = 8.22, p = 0.005$), but no significant simple main effect for subsequent accounting in the low uncertainty condition ($F_{1,109} = 0.36, p = 0.547$). Consistent with our written justification results presented earlier, dispersion is significantly higher in the one cell—high uncertainty and impairment testing for the trademark—than in the other three cells ($F_{1,109} = 24.90, p < 0.001$, untabulated).

Overall, this pattern of results is consistent with elastic justification theory. The latter predicts that participants will leverage the high (but not low) uncertainty in their private information about the fair values of intangibles to assign fair values to intangibles in a way that best meets their financial reporting preferences. Greater uncertainty allows acquirers to justify considering their own financial reporting preferences in their valuation decisions, despite those preferences being formally irrelevant to the task at hand.\(^{10}\) What was unexpected in this first experiment, though, is that these preferences were not uniform, thereby creating an offsetting effect in the mean valuations that we observed in the high uncertainty / impairment condition.

\(^{10}\) As one would expect of participants using greater elasticity in relevant factors to justify their irrelevant preferences, participants believe that a trademark valuation at the end-point of the range considered acceptable by outside auditors ($35$ million) is more justifiable when uncertainty is high than when it is low ($F_{1,109} = 4.73, p = 0.032$).
Evidence Related to Goodwill

Although experiment one did not formally involve goodwill in the acquisition transaction, we nevertheless asked participants several post-experimental questions to gain some insight into their perceptions of goodwill. First, we elicited participants’ perceptions of how they believe that investors view goodwill and other indefinite-lived intangible assets. Results show that our experienced participants believe that investors view goodwill (mean = 39.20 out of 100) less favorably than other indefinite-lived intangibles (mean = 48.33 out of 100) ($t_{110} = 4.38, p < 0.001$). These views about goodwill help us to understand the results of another question asking participants if they would change their initial valuations by assigning part of the purchase price to goodwill, which is tested for impairment. The question prompt reminded participants of their original valuations, which involved only the trademark and developed software. When given the option to assign some of the $50 million to goodwill, participants valued goodwill at $4.59 million on average, or 9% of the $50 million, and just over half of participants (57 of 113) chose not to assign any value to goodwill.\footnote{The option to assign some of the purchase price to goodwill reduced valuations of both the developed software and the trademark (both $p$-values $< 0.001$). However, neither the accounting for the trademark nor the uncertainty of private information—nor their interaction—significantly affected the amount assigned to goodwill (all $p$-values $> 0.650$).}

These results suggest that acquirers could have preferences related to the balance sheet in their acquisition-date valuation decisions, in addition to preferences over income statement outcomes suggested by the free response and dispersion results of experiment one. In experiment two, we more directly test participants’ preferences related to the balance sheet effects of goodwill in acquisition-date valuation decisions.
IV. EXPERIMENT TWO

Design Overview and Participants

Experiment two has the same $2 \times 2$ between-participants design as experiment one, with one key difference. In experiment two, participants value only a developed software asset, with the remainder of the $50$ million being allocated to goodwill. Our first manipulation is whether goodwill is amortized over the subsequent 10 years or tested for impairment in subsequent accounting periods.¹² Thus, we design the task such that acquirers’ preferences for both income statement and balance sheet outcomes could influence their valuation decisions. As in experiment one, we also manipulate the uncertainty of participants’ private information about the value of developed software. In the low (high) uncertainty condition, we tell participants that their own professional estimate of the value of the developed software is between $19$ and $21$ million ($15$ and $25$ million). We select these ranges so that the midpoint is the same ($20$ million) in both conditions.

We followed the same procedure as experiment one to recruit experienced professionals for experiment two, drawing from the same population of individuals who have a degree in accounting from a top-rated program in the United States and graduated at least ten years prior to the experiment. We randomly selected a different set of 300 individuals and mailed them a participation letter with a link to complete the experimental materials online through an online survey, as well as follow-up emails with the same information. We received 89 responses (30% response rate). Participants report an average of 22 years of work experience, and 93% have work experience in accounting. More than half of participants (54%) have experience with acquisitions and assigning fair values to assets and liabilities in an acquisition. Further,

¹² Both accounting techniques are possible under current accounting rules. Private companies are allowed the option to either amortize goodwill over ten years or test it annually for impairment (FASB 2014a; FASB 2014b).
participants report being familiar with accounting for intangible assets (mean of 65 out of 100).\textsuperscript{13} We randomly assign all participants to one of the four experimental conditions.

**Results**

*Manipulation and Other Checks*

To confirm that our manipulations are successful, we ask participants to indicate whether goodwill would reduce net income each year through amortization expense or whether reductions in net income would only arise if events or circumstances indicate the value of goodwill is impaired. We also ask whether their own professional estimate of the value of the developed software was between $19-21 or $15-25 million. All participants correctly respond to both questions, indicating that our manipulations are successful. In addition, all participants correctly indicate the firm’s outside auditor would not question an allocation between $15-25 million for the developed software, demonstrating that participants understand the distinction between their own private estimate and the range of estimates that would be acceptable to the auditor. We include all participants’ responses in our analyses.

*Intangible Asset Valuations*

Descriptive statistics for the value assigned to goodwill are presented in Panel A of Table 3, and the two-way analysis of variance (ANOVA) is presented in Panel B of Table 3. Mean valuations for goodwill are graphically presented by condition in Figure 2.

[Table 3 and Figure 2 here]

Consistent with elastic justification, the pattern of cell means in Figure 2 reveals that acquirers’ preferences for financial reporting outcomes (the irrelevant factor) determine valuation decisions when uncertainty in acquirers’ private fair value information (the relevant

\textsuperscript{13} One respondent did not complete demographic questions; thus, demographic statistics are based on 88 responses. Inferences from our analyses are unchanged when excluding this one participant.
factor) is high but not when uncertainty is low. Specifically, under high uncertainty, the average value assigned to goodwill is higher when it is impaired rather than amortized, but is no different under low uncertainty. Results in Panel B of Table 3 indicate the interaction between the subsequent accounting for goodwill and the uncertainty of acquirers’ private information is statistically significant ($F_{1,85} = 3.78, p = 0.055$). We also find a significant main effect of the subsequent accounting for goodwill ($F_{1,85} = 4.13, p = 0.045$) and a significant main effect of uncertainty on participants’ valuation decisions ($F_{1,85} = 4.30, p = 0.041$).

Simple effects reported in Panel C of Table 3 clarify the specific form of the interaction and confirm the results are consistent with elastic justification theory. Turning first to the simple main effects associated with our subsequent accounting manipulation, goodwill values are significantly higher under impairment than under amortization when uncertainty is high ($F_{1,85} = 7.96, p = 0.006$) but not when uncertainty is low ($F_{1,85} = 0.00, p = 0.952$). These results are consistent with acquirers leveraging the higher uncertainty in the relevant factor to justify using an irrelevant factor (i.e., the income statement consequences associated with the accounting) to assign a higher valuation to goodwill when the subsequent accounting measurement requires periodic impairment testing, indicating that acquirers prefer to reduce amortization expense associated with the other intangible—the developed software. These overall results support elastic justification theory and our hypothesis, but the results in the low uncertainty conditions are particularly striking as participants were told that the outside auditor was comfortable with a wider range of values for the intangibles than their own private information suggested. Despite this information, participants did not use that available discretion, but appeared constrained by their own private information, consistent with elastic justification theory.
Examining the simple main effects associated with the uncertainty variable provides additional insights about acquirers’ consideration of irrelevant factors. Goodwill values are significantly lower under high compared to low uncertainty when goodwill is amortized ($F_{1,85} = 7.49, p = 0.008$). Here, there are no differential income statement consequences if a higher valuation is given to one of those intangibles at the date of acquisition as both are amortized, yet we observe participants relying on higher uncertainty about the relevant factor to justify placing a lower value on goodwill. This result indicates that acquirers consider the implications of the balance sheet when assigning their acquisition-date valuations, and specifically demonstrate a preference to minimize the value of goodwill on the balance. In contrast, when goodwill is impaired, participants’ valuations do not differ between high and low uncertainty conditions ($F_{1,85} = 0.01, p = 0.925$).

Overall, our results are consistent with elastic justification theory. In experiment one, we show that acquirers appear to trade off multiple conflicting preferences for financial reporting outcomes. In experiment two, these include preferences related to both income statement and balance sheet outcomes. In both experiments, it is the high uncertainty in acquirers’ private information that causes them to justify considering these preferences in making acquisition-date valuation decisions.\(^\text{14}\)

**Additional Evidence of Elastic Justification: Justifiability Measures**

Elastic justification theory predicts that decision-makers will consider decisions based on irrelevant factors to be more justified when there is greater uncertainty about relevant factors (e.g., Hsee, 1995; 1996). Although our results are collectively consistent with this theory, we

\(^{14}\) That participants might have considered a certain allocation as more desirable for subsequent access to debt financing seems unlikely as it is tangible, rather than intangible, assets which have been shown to increase the acquiring company’s ability to secure more financing after an acquisition (Aleszczyk et al., 2019).
collect participants’ judgments of the justifiability of valuations at the high-point and low-point of the range that would be deemed acceptable by the outside auditor (corresponding to goodwill valuations of $35 million and $25 million) to provide further support for the theory. If, ceteris paribus, acquirers prefer to recognize less goodwill, they will naturally view lower valuations as more justifiable when there is greater uncertainty about relevant factors. Consistent with this notion, participants view the low point of the goodwill valuation range ($25 million) as being more justifiable when uncertainty is high than when it is low ($F_{1,85} = 13.90, p < 0.001$). As one would expect, given preferences not to assign a high value to goodwill, uncertainty does not affect participants’ judgments of the justifiability of the high-point of the goodwill valuation range ($F_{1,85} = 1.49, p = 0.225$). Overall, these justifiability results are consistent with experienced participants using the leeway afforded by greater uncertainty in their private information about the fair value of the developed software to minimize the amount of goodwill recognized on the balance sheet.

**How Do Acquirers Prioritize Financial Statement Outcomes?**

Considering the results of experiments one and two in combination, we observe evidence of acquirers using greater uncertainty in their private information to justify considering both income statement and balance sheet preferences in making their acquisition-date fair value decisions for intangible assets. An unanswered question, though, is how acquirers prioritize their income statement and balance sheet preferences, if at all. For example, one possibility is that

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15 We observe no effect of subsequent accounting (either main effect or interaction) on the justifiability of either the high point or the low point of the range (all $p$-values $> 0.171$).

16 We also analyzed the dispersion of fair value decisions in experiment two. As in experiment one, and consistent with acquirers engaging in elastic justification, we observe greater dispersion when uncertainty is higher ($F_{1,85} = 13.69, p < 0.001$). We also observe an interaction between the accounting for goodwill and uncertainty ($F_{1,85} = 4.62, p = 0.034$). This interaction reflects that the lowest level of dispersion is observed in the low uncertainty/goodwill amortized condition, suggesting that participants exhibit the greatest level of agreement when uncertainty is low and there are no income statement effects of their valuation decisions. The main effect of subsequent accounting is not significant ($F_{1,85} = 1.28, p = 0.261$).
acquirers consider balance sheet preferences (i.e., to minimize goodwill) only when their valuation decisions are unlikely to have income statement consequences; that is, their balance sheet preferences may be secondary to their income statement preferences. On the other hand, acquirers may consider income statement and balance sheet effects to be equally important, or indeed they may prioritize balance sheet effects over income statement effects.

To shed light on how acquirers prioritize financial statement effects, we ask participants (in both experiments) to rank the importance of the four financial statements (i.e., balance sheet, income statement, statement of cash flows and statement of stockholders’ equity), according to how they believe users view their importance. Results suggest that acquirers prioritize income statement outcomes and consider balance sheet outcomes secondary. Specifically, experiment two participants rank the income statement as being most important (mean ranking of 1.56 out of 4.00), with the balance sheet being tied (with the statement of cash flows) for second-most important (mean ranking of 2.29). A Friedman test confirms that participants believe that the four financial statements differ in their importance to users ($\chi^2_{(3)} = 155.14, p < 0.001$). Further, a Wilcoxon signed ranks test confirms that participants rank the income statement as significantly more important to users than the balance sheet ($Z = 4.74, p < 0.001$).

Collectively, our results suggest acquirers use the leeway afforded by greater uncertainty in their private information to justify incorporating preferences for both income statement and balance sheet outcomes into their acquisition-date fair value decisions, but view balance sheet outcomes as secondary to income statement outcomes.

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17 Experiment one results for these questions are inferentially identical to those for experiment two. We present only experiment two results here for brevity and because experiment two involved both income statement and balance sheet preferences.
V. CONCLUSIONS

Results from two experiments with experienced professionals support the idea that in business combination transactions, acquirers leverage high (but not low) uncertainty in their private information about the fair values of intangible assets (a relevant factor) to justify basing their decisions on preferences for certain financial reporting outcomes (an irrelevant factor). Across our two experiments, we find that acquirers consider specific preferences for avoiding amortization expense, reducing the risk of future impairment losses, and reducing the value of goodwill on the balance sheet. These results indicate that acquirers’ preferences in valuing acquired intangible assets are more complex than trading off the income statement effects of their valuation decisions, which has been the focus of prior literature (e.g., Shalev et al., 2013; Zhang and Zhang, 2017).

As with any study, our study has limitations that suggest opportunities for future research. For example, we ensured that all participants knew very clearly that external auditors would be comfortable with the (wide) range of acquired asset values. This information was provided to ensure that acquirers believed that their fair value decisions would be subject to the same level of external scrutiny. Future research could investigate how our results would differ if different information were provided about what the auditor finds acceptable (e.g., a narrower range), particularly because acquirers in our experiment were more concerned with the uncertainty in their own private information (i.e., justifying to themselves) than in what the auditor would find acceptable. Future research that further explores the role of the auditor is important as it may help us understand why some firms repeatedly engage in earnings management despite various outside pressures to not do so. Prior research attributes some of this behavior to overconfident
managers (Fischer and Verrecchia, 2004; Schrand and Zechman, 2012), but it may be that managers (also) engage in self-justification behavior as posited in this paper.

We acknowledge that our insights are specific to the business combination context, which is, without question, a significant area within accounting. However, we are unable to speak to generalizability to other accounting contexts. Although the elastic justification theory we rely on herein should generalize, future research could nevertheless explore how our insights apply to other accounting settings. For example, do firm managers deriving fair values for options issued as part of stock-based compensation use the uncertainty in option-pricing model inputs (relevant factor) to justify picking strategic input values to achieve a particular earnings benchmark (irrelevant factor)? Likewise, do firm managers use the uncertainty in pension assumptions, such as the discount rate, expected life of employees/retirees, and expected return on plan assets (relevant factors) to achieve a particular debt to equity ratio (irrelevant factor) to avoid defaulting on debt covenants? Financial reporting has numerous situations in which the ideas of elastic justification could explain managers’ decision-making, providing opportunities for additional research.

The examples above highlight one final note for future research. Whether a factor is relevant or irrelevant is not always obvious; indeed, it is likely to be the case that relevance depends on the context and/or perspective of the decision-maker (Hsee 1996). From the perspective of the auditor or standard setter, firm managers should pick the most unbiased values for fair value estimation of stock options or for the calculation of the projected benefit obligation pension liability; so, the inputs to fair value models or calculations represent the only relevant factors. From the perspective of the firm manager, however, it is less obvious that s/he would consider those the only relevant factors. Indeed, the manager is likely to argue that meeting an earnings
forecast or maintaining a key ratio at an acceptable level are quite relevant not only from his/her own perspective (i.e., job, bonus), but also the firm’s perspective. Future research that explores the role of context and perspective would be fruitful given the inherent explanatory power of elastic justification in the financial reporting context.
REFERENCES


FIGURE 1
Experiment one results

Panel A: Trademark values

FIG. 1—Panel A presents cell means for participants’ trademark value decisions in experiment one. Panel B presents cell means for the dispersion in participants’ responses, measured as the absolute difference between the value assigned to the trademark and the mean trademark value by condition. See Table 1 (2) for descriptive and inferential statistics related to the measures in Panel A (B).
FIGURE 2
Experiment two—goodwill values

FIG. 2—This figure illustrates cell means for the main dependent measure in experiment two—the value assigned to goodwill—showing how our manipulations of information uncertainty and the accounting treatment of goodwill affect acquirers’ acquisition-date fair value decisions. See Table 3 for descriptive and inferential statistics.
### TABLE 1
Experiment one results—means of trademark values

**Panel A: Descriptive statistics – mean [standard deviation] trademark values**

<table>
<thead>
<tr>
<th>Uncertainty</th>
<th>Accounting for Trademark</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Impairment</td>
<td>Amortization</td>
<td>Row Means</td>
<td></td>
</tr>
<tr>
<td>Low uncertainty</td>
<td>29.73 [1.08]</td>
<td>29.93 [0.98]</td>
<td>29.84 [1.02]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>( n = 26 )</td>
<td>( n = 30 )</td>
<td>( n = 56 )</td>
<td></td>
</tr>
<tr>
<td></td>
<td>( n = 29 )</td>
<td>( n = 28 )</td>
<td>( n = 57 )</td>
<td></td>
</tr>
<tr>
<td>Column Means</td>
<td>30.13 [2.53]</td>
<td>30.09 [1.69]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( n = 55 )</td>
<td>( n = 58 )</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Panel B: Analysis of variance results**

<table>
<thead>
<tr>
<th>Source</th>
<th>( df )</th>
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<th>( F )-stat</th>
<th>( p )-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
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<td>0.01</td>
<td>0.00</td>
<td>0.970</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>1</td>
<td>8.04</td>
<td>1.76</td>
<td>0.188</td>
</tr>
<tr>
<td>Accounting ( \times ) Uncertainty</td>
<td>1</td>
<td>1.34</td>
<td>0.29</td>
<td>0.591</td>
</tr>
<tr>
<td>Error</td>
<td>109</td>
<td>4.58</td>
<td>[\text{not tabulated}]</td>
<td>[\text{not tabulated}]</td>
</tr>
</tbody>
</table>

**Panel C: Simple main effects**

<table>
<thead>
<tr>
<th>Effect</th>
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<th>MS</th>
<th>( F )-stat</th>
<th>( p )-value</th>
</tr>
</thead>
<tbody>
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<td>Effect of accounting given high uncertainty</td>
<td>1</td>
<td>0.77</td>
<td>0.17</td>
<td>0.682</td>
</tr>
<tr>
<td>Effect of accounting given low uncertainty</td>
<td>1</td>
<td>0.57</td>
<td>0.13</td>
<td>0.725</td>
</tr>
<tr>
<td>Effect of uncertainty given amortization</td>
<td>1</td>
<td>1.45</td>
<td>0.32</td>
<td>0.575</td>
</tr>
<tr>
<td>Effect of uncertainty given impairment</td>
<td>1</td>
<td>7.75</td>
<td>1.69</td>
<td>0.196</td>
</tr>
</tbody>
</table>

This table reports the results of experiment one, which investigates how the uncertainty of private information about the value of acquired intangible assets and the accounting treatment of a trademark affect experienced participants’ acquisition-date fair value estimates. We manipulate uncertainty of information at two levels: low and high. We manipulate the accounting treatment of the trademark by informing participants that the trademark is amortized to expense over the subsequent 10 years (amortization) or is tested for impairment annually and only reduces net income if there is evidence that its value has declined (impairment). Participants assign the remaining $50 million of the purchase price to developed software and the trademark. Panel A reports the descriptive statistics for the trademark values, Panel B reports the ANOVA results for this measure, and Panel C reports the simple main effects of our manipulations.
TABLE 2
Experiment one results—dispersion of trademark values

Panel A: Descriptive statistics – mean [standard deviation] dispersion in trademark values

<table>
<thead>
<tr>
<th>Uncertainty</th>
<th>Accounting for Trademark</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Impairment</td>
<td>Amortization</td>
<td>Row Means</td>
</tr>
<tr>
<td>Low uncertainty</td>
<td>0.59 [0.90]</td>
<td>0.33 [0.92]</td>
<td>0.45 [0.91]</td>
</tr>
<tr>
<td></td>
<td>n = 26</td>
<td>n = 30</td>
<td>n = 56</td>
</tr>
<tr>
<td>High uncertainty</td>
<td>2.42 [2.22]</td>
<td>1.21 [1.84]</td>
<td>1.83 [2.11]</td>
</tr>
<tr>
<td></td>
<td>n = 29</td>
<td>n = 28</td>
<td>n = 57</td>
</tr>
<tr>
<td>Column Means</td>
<td>1.56 [1.95]</td>
<td>0.76 [1.51]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 55</td>
<td>n = 58</td>
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Panel B: Analysis of variance results

<table>
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<tr>
<th>Source</th>
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<th>F-stat</th>
<th>p-value</th>
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<tr>
<td>Accounting</td>
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<td>15.12</td>
<td>5.98</td>
<td>0.016</td>
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<tr>
<td>Uncertainty</td>
<td>1</td>
<td>51.92</td>
<td>20.52</td>
<td>&lt;0.001</td>
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<tr>
<td>Accounting × Uncertainty</td>
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<td>6.36</td>
<td>2.52</td>
<td>0.116</td>
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<tr>
<td>Error</td>
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<td>4.58</td>
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Panel C: Simple main effects

<table>
<thead>
<tr>
<th>Effect</th>
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<th>MS</th>
<th>F-stat</th>
<th>p-value</th>
</tr>
</thead>
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<td>20.78</td>
<td>8.22</td>
<td>0.005</td>
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<tr>
<td>Effect of accounting given low uncertainty</td>
<td>1</td>
<td>0.92</td>
<td>0.36</td>
<td>0.547</td>
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<tr>
<td>Effect of uncertainty given amortization</td>
<td>1</td>
<td>11.27</td>
<td>4.46</td>
<td>0.037</td>
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<tr>
<td>Effect of uncertainty given impairment</td>
<td>1</td>
<td>46.05</td>
<td>18.21</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

This table reports results from experiment one, in which we investigate how the uncertainty of private information about the value of acquired intangible assets and the accounting treatment of the trademark affect experienced participants’ acquisition-date fair value estimates. The dependent measure, dispersion, is the absolute difference between each participant’s trademark value and the mean value by condition. We manipulate uncertainty of information at two levels: low and high. We manipulate the accounting treatment of the trademark by informing participants that the trademark is amortized to expense over the subsequent 10 years (amortization) or is tested for impairment annually and only reduces net income if there is evidence that its value has declined (impairment). Participants assign the remaining $50 million of the purchase price to developed software and the trademark. Panel A reports the descriptive statistics for the dispersion measure, Panel B reports the ANOVA results for this measure, and Panel C reports the simple main effects of our manipulations.
### TABLE 3

Experiment two results—means of goodwill values

**Panel A: Descriptive statistics – mean [standard deviation] goodwill values**

<table>
<thead>
<tr>
<th>Uncertainty</th>
<th>Accounting for Goodwill</th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Impairment</td>
<td>Amortization</td>
<td>Row Means</td>
</tr>
<tr>
<td>Low uncertainty</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>29.96</td>
<td>29.90</td>
<td>29.93</td>
</tr>
<tr>
<td></td>
<td>[3.11]</td>
<td>[0.54]</td>
<td>[2.26]</td>
</tr>
<tr>
<td></td>
<td>n = 23</td>
<td>n = 21</td>
<td>n = 44</td>
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<tr>
<td>High uncertainty</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>29.88</td>
<td>27.50</td>
<td>28.82</td>
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<tr>
<td></td>
<td>[3.41]</td>
<td>[3.04]</td>
<td>[3.43]</td>
</tr>
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<td></td>
<td>n = 25</td>
<td>n = 20</td>
<td>n = 45</td>
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<tr>
<td>Column Means</td>
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</tr>
<tr>
<td></td>
<td>29.92</td>
<td>28.73</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[3.23]</td>
<td>[2.45]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 48</td>
<td>n = 41</td>
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**Panel B: Analysis of variance results**

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<th>F-stat</th>
<th>p-value</th>
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<td>4.13</td>
<td>.045</td>
</tr>
<tr>
<td>Uncertainty</td>
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<td>34.00</td>
<td>4.30</td>
<td>.041</td>
</tr>
<tr>
<td>Goodwill Accounting × Uncertainty</td>
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<td>29.93</td>
<td>3.78</td>
<td>.055</td>
</tr>
<tr>
<td>Error</td>
<td>85</td>
<td>7.91</td>
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**Panel C: Simple main effects**

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<th>MS</th>
<th>F-stat</th>
<th>p-value</th>
</tr>
</thead>
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<td>62.94</td>
<td>7.96</td>
<td>0.006</td>
</tr>
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<td>Effect of subsequent accounting given low uncertainty</td>
<td>1</td>
<td>0.03</td>
<td>0.00</td>
<td>0.952</td>
</tr>
<tr>
<td>Effect of uncertainty given amortization</td>
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<td>59.24</td>
<td>7.49</td>
<td>0.008</td>
</tr>
<tr>
<td>Effect of uncertainty given impairment</td>
<td>1</td>
<td>0.07</td>
<td>0.01</td>
<td>0.925</td>
</tr>
</tbody>
</table>

This table reports the results of experiment two, which investigates how the uncertainty of private information about the value of acquired intangible assets and the accounting treatment of goodwill affect experienced participants’ acquisition-date fair value estimates. We manipulate uncertainty of private information at two levels: low and high. We manipulate the accounting treatment of goodwill by informing participants that goodwill is amortized to expense over the subsequent 10 years (amortization) or is tested for impairment annually and only reduces net income if there is evidence that its value has declined (impairment). Participants assign the remaining $50 million of the purchase price to developed software and goodwill. Panel A reports the descriptive statistics for goodwill values, Panel B reports the ANOVA results for this measure, and Panel C reports the simple main effects of our manipulations.